

Patent Application
Attorney Docket No.: 57983.000029
Client Reference No.: 13257ROUS01U

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Re Application of: :
Herman Kwong et al. : Group Art Unit: 284
Appln. No.: 09/749,409 :
Filed: December 28, 2000 : Examiner: J. Alcalá
For: HIGH DATA RATE COAXIAL :
INTERCONNECT TECHNOLOGY :
BETWEEN PRINTED WIRING BOARDS :

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Assistant Commissioner
for Patents
Washington, D.C. 20231

AMENDMENT/RESPONSE

Sir:

In response to the Office Action dated March 28, 2002,
please amend the above-identified patent application as follows:

IN THE SPECIFICATION:

Please amend the specification by amending the paragraph
extending from page 9, line 8, to page 11, line 11, as indicated
in attached Appendix A.

A clean copy of the amended paragraph extending from page
9, line 8, to page 11, line 11, is provided in attached Appendix
B.

IN THE CLAIMS:

Please amend claims 13, 14, 19-21, 24, and 28 as indicated in attached Appendix C.

A clean copy of all pending claims 13-24 and 28-30 is provided in attached Appendix D.

IN THE DRAWINGS:

A Request for Approval of Drawing Amendments is submitted herewith which proposes changes to Figures 1, 1A, 2A, 3A, 6, and 7.

REMARKS

The Office Action dated March 28, 2002, has been received and carefully considered. Claims 13-24 and 28-30 are pending in the present application.

In this response, the specification and claims 13, 14, 19-21, 24, and 28 have been amended, and amendments to the drawings have been proposed. Entry of the amendments to the specification and claims 13, 14, 19-21, 24, and 28 is respectfully requested. Approval of the proposed amendments to the drawings is also respectfully requested. Consideration of amended claims 13, 14, 19-21, 24, and 28 and reconsideration of

claims 15-18, 22, 23, 29, and 30 is further respectfully requested based on the following remarks.

I. THE ELECTION/RESTRICTION REQUIREMENT

On page 2 of the Office Action, the Examiner sets forth another proposed process for making the claimed product. However, this proposed process would not result in the claimed product. For example, it is not possible to insert an adhesive into a hole that is not yet made. Thus, Applicants reassert their traversal of the Election/Restriction Requirement.

II. THE OBJECTION TO THE DRAWINGS

On page 3 of the Office Action, the Examiner asserts that the Figures are improperly cross-hatched. However, it is unclear as to what the Examiner is referring to as none of the Figures submitted on April 9, 2001, contain cross-hatching.

On page 3 of the Office Action, the Examiner asserts that Figure 1A should be designated by a legend such as "Prior Art." An amendment to Figure 1A has been proposed in the attached Request for Approval of Drawing Amendments which addresses this issue.

On page 3 of the Office Action, the Examiner asserts that reference number 10 is not in Figures 1 and 1A. An amendment to

Figure 1 has been proposed in the attached Request for Approval of Drawing Amendments which addresses this issue. No amendments to Figure 1A have been proposed as reference number 10 should not be included in Figure 1A.

On page 3 of the Office Action, the Examiner asserts that reference numbers 100 and 102 are not in Figures 6 and 7. Amendments to Figures 6 and 7 have been proposed in the attached Request for Approval of Drawing Amendments which address this issue.

On page 3 of the Office Action, the Examiner asserts that reference numbers 27a, 27b, and 28b in Figure 3A are not mentioned in the Specification. Regarding reference numbers 27a and 27b, these reference numbers logically flow from reference number 27 in the Specification and in Figures 2A and 2B. An amendment to Figure 3A has been proposed in the attached Request for Approval of Drawing Amendments which address the issue with respect to reference number 28b (i.e., it should be changed to 24b).

On page 3 of the Office Action, the Examiner asserts that reference numbers 27a and 27b in Figure 3C are not mentioned in the Specification. Reference numbers 27a and 27b logically flow from reference number 27 in the Specification and in Figures 2A and 2B.

On page 3 of the Office Action, the Examiner asserts that reference numbers 46a, 47a, 46b, 47b, and 50a in Figure 5A are not mentioned in the Specification. Reference numbers 46a, 47a, 46b, and 47b logically flow from reference numbers 46 and 47 in Figures 4A and 4B. Reference number 50a logically flows from reference number 50 in the Specification.

On page 3 of the Office Action, the Examiner asserts that reference numbers 200, 202, 106a, and 106d in Figure 6 are not mentioned in the Specification. An amendment to Figure 6 has been proposed in the attached Request for Approval of Drawing Amendments which address the issue with respect to reference numbers 200, 202, and 106d (i.e., they should be changed to 100, 102, and 106a, respectively). Reference number 106a is mentioned in the Specification.

On page 4 of the Office Action, the Examiner asserts that reference number 25 in Figures 2A and 2B is used to designate both a "copper ground plane" and "a lower surface of the PWB 11." The Specification has been amended to address this issue (i.e., 25 should be changed to 23 in the Specification).

III. THE OBJECTION TO CLAIMS 13 AND 21

On page 4 of the Office Action, claim 13 was objected to for a misspelling of the word "the." Claim 13 has been amended to address this issue.

On page 4 of the Office Action, claim 21 was objected to for an unnecessary inclusion of the word "a." Claim 21 has been amended to address this issue.

IV. THE INDEFINITENESS REJECTION OF CLAIMS 14, 19, 21, 22, 24,
AND 29

On page 4 of the Office Action, claims 14, 19, 21, 22, 24, and 29 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the invention. This rejection is hereby respectfully traversed with partial amendment.

Claim 14 has been amended to coincide with an amendment to claim 13 such that the Examiners assertions are now moot.

Claim 19 has been amended to depend from claim 18 so as to provide sufficient antecedent basis for the ground plane layers.

Regarding claim 21, Applicants respectfully submit that there is no omission of essential structural cooperative relationships of elements.

Regarding claims 22, 24, and 29, Applicants are unsure as to the Examiner's grounds of rejection as none are provided in

the Office Action. Regardless, Applicants respectfully submit that claims 22, 24, and 29 are fully compliant with 35 U.S.C. § 112, second paragraph (with dependency amendment of claim 22).

In view of the foregoing, it is respectfully submitted that the indefiniteness rejection of claims 14, 19, 21, 22, 24, and 29 is no longer proper, and the withdrawal of such rejection is respectfully requested.

V. THE OBVIOUSNESS REJECTION OF CLAIMS 13-24 AND 28-30

On page 6 of the Office Action, claims 13-24 and 28-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Admitted Prior Art in view of Swamy (U.S. Patent No. 5,576,519) and further in view of Daigle et al. (U.S. Patent No. 5,046,238). This rejection is hereby respectfully traversed.

As stated in MPEP § 2143, to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed

combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Also, as stated in MPEP § 2143.01, obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Further, as stated in MPEP § 2143.01, to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). That is, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 165 USPQ 494, 496 (CCPA 1970). Additionally, as stated in MPEP § 2141.02, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead

away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). Finally, if an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Regarding independent claim 13, the Examiner asserts that Applicant's Admitted Prior Art teaches circuit boards (Reference number 11) having a signal conducting means formed therein (Reference number 26), the signal conducting means being shielded by an electrically conductive shield (Reference number 28), the electrically conductive shield having an opening (Reference Number 30) formed therein so as to expose the signal conducting means in the circuit boards.

However, what the Examiner refers to as Applicant's Admitted Prior Art is in fact subject matter contained in parent U.S. Patent Application No. 09/660,196. As set forth in the Specification (see page 1), the present patent application is a continuation-in-part of U.S. Patent Application No. 09/660,196, entitled "Technique for Coupling Signals Between Circuit Boards" which was filed on September 12, 2000, as a continuation-in-part of U.S. Patent Application No. 09/443,128, entitled "Zero Cross-Talk Signal Line Design", filed November 18, 1999, both of which

have been incorporated by reference in the present patent application in their entirety. Thus, what the Examiner refers to as Applicant's Admitted Prior Art is not in fact prior art. Rather, what the Examiner refers to as Applicant's Admitted Prior Art is actually related art that is part of the present patent application.

Accordingly, since there is no prior art teaching of circuit boards having a signal conducting means formed therein, wherein the signal conducting means is shielded by an electrically conductive shield, wherein the electrically conductive shield has an opening formed therein so as to expose the signal conducting means in the circuit boards, and wherein the openings in the circuit boards are aligned, as evidenced by the allowance of U.S. Patent Application No. 09/660,196, issued on June 4, 2002, as U.S. Patent No. 6,399,898, claim 13 would not be obvious in view of the other cited references of Swampy and Daigle et al., which both fail to disclose the alignment of openings in circuit boards as described above.

Claims 14-24 are dependent upon independent claim 13. Thus, since independent claim 13 is allowable as discussed above, claims 14-24 are also allowable at least by virtue of their dependency on independent claim 13. Moreover, these claims recite additional subject matter which is not suggested

by the cited references taken either alone or in combination. For example, Swamy and Daigle et al. both fail to disclose 1.) an electrically conductive adhesive, solder paste, or interposer/elastomer device disposed within a first via located within the first opening and within a second via located within the second opening (see claim 14); 2.) that the first circuit board is a motherboard and the second circuit board is a daughterboard (see claim 23); and 3.) the daughterboard is formed at least partially of flexible material so as to allow angular mating with the motherboard (see claim 24).

Since independent claim 28 recites subject matter similar to independent claim 13, claim 28 is allowable for reasons similar to those given above with respect to claim 13.

Claims 29 and 30 are dependent upon independent claim 28. Thus, since independent claim 28 is allowable as discussed above, claims 29 and 30 are also allowable at least by virtue of their dependency on independent claim 28. Moreover, these claims recite additional subject matter which is not suggested by the cited references taken either alone or in combination. For example, Swamy and Daigle et al. both fail to disclose that the first signal conducting means comprises a first pair of conductors and the second signal conducting means comprises a second pair of conductors and each conductor of the first pair

is connected with a conductor of the second pair for transmission of two signals between the first pair and the second pair (see claim 29).

At this point it should be noted that claims 13 and 28 have been amended to remove any indefiniteness associated with the list of electrically conductive adhesive, solder paste, or interposer/elastomer device.

In view of the foregoing, it is respectfully submitted that the obviousness rejection of claims 13-24 and 28-30 is improper, and the withdrawal of such rejection is respectfully requested.

VI. CONCLUSION

In view of the foregoing, it is respectfully submitted that the present application is in condition for allowance, and an early indication of the same is courteously solicited. The Examiner is respectfully requested to contact the undersigned by telephone at the below listed telephone number, in order to expedite resolution of any issues and to expedite passage of the present application to issue, if any comments, questions, or suggestions arise in connection with the present application.

To the extent necessary, a petition for an extension of time under 37 CFR § 1.136 is hereby made.

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Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-0206, and please credit any excess fees to the same deposit account.

Respectfully submitted,

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